

TAKING THE STRAIN

Hugo Gmür shares his thoughts on the best methods to achieve a uniform level of tension when stretching mesh onto a frame for screen printing



Hugo Gmür is Corporate Market & Product Manager of Screen Printing at Sefar

Printing stencils used in screen printing require the mesh to be stretched onto a frame uniformly and with minimal discrepancy in tension. There are several methods to stretch mesh onto frames which can be narrowed down to two main tensioning systems which operate either mechanically or pneumatically.

PNEUMATIC TENSIONING SYSTEM

The pneumatic system benefits from the direct contact between clamps and frame which enables the force resulting from the tension to transfer evenly onto the frame, whereby the frame is provided by pre-tensioning. Pre-tensioning is necessary to reduce a potential tension drop once the screen is removed from the system.

For polyester and polyamide mesh, we recommend a pneumatic tensioning system, consisting of Sefar 3A clamps combined with the Sefar 51i control unit as well as the Sefar Tensocheck 100 tension gauge. The system is highly flexible and customisable regarding



Used worldwide, Sefar 3A clamps have lifting function which allows the mesh to be stretched over the frame contact-free



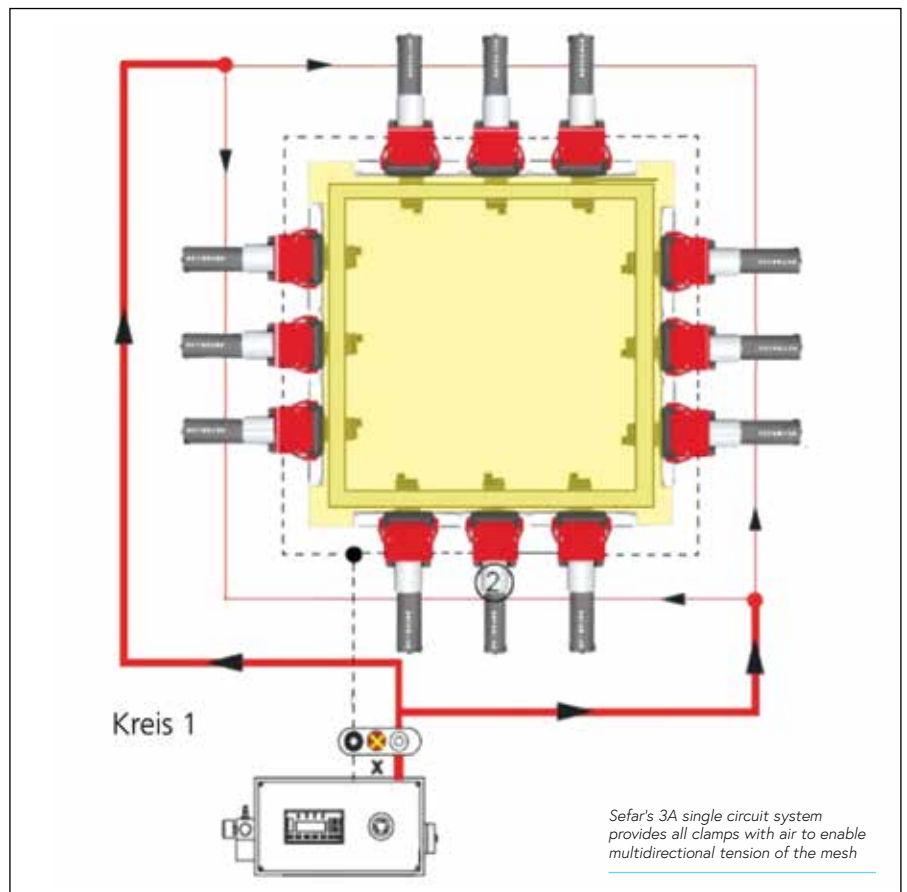
Pneumatic tensioning system, consisting of Sefar 3A clamps combined with Sefar's 51i control unit and Tensocheck 100 tension gauge

frame size as it consists of single clamps with a width of 15cm or 25cm. Therefore, the right number of clamps can be configured for each individual frame format.

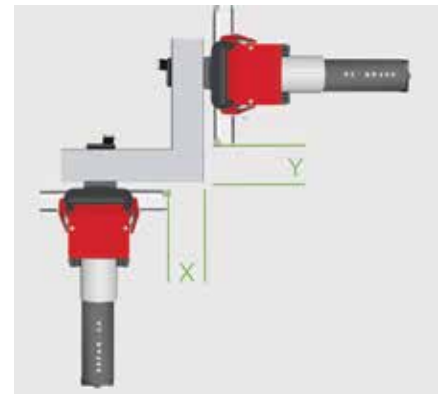
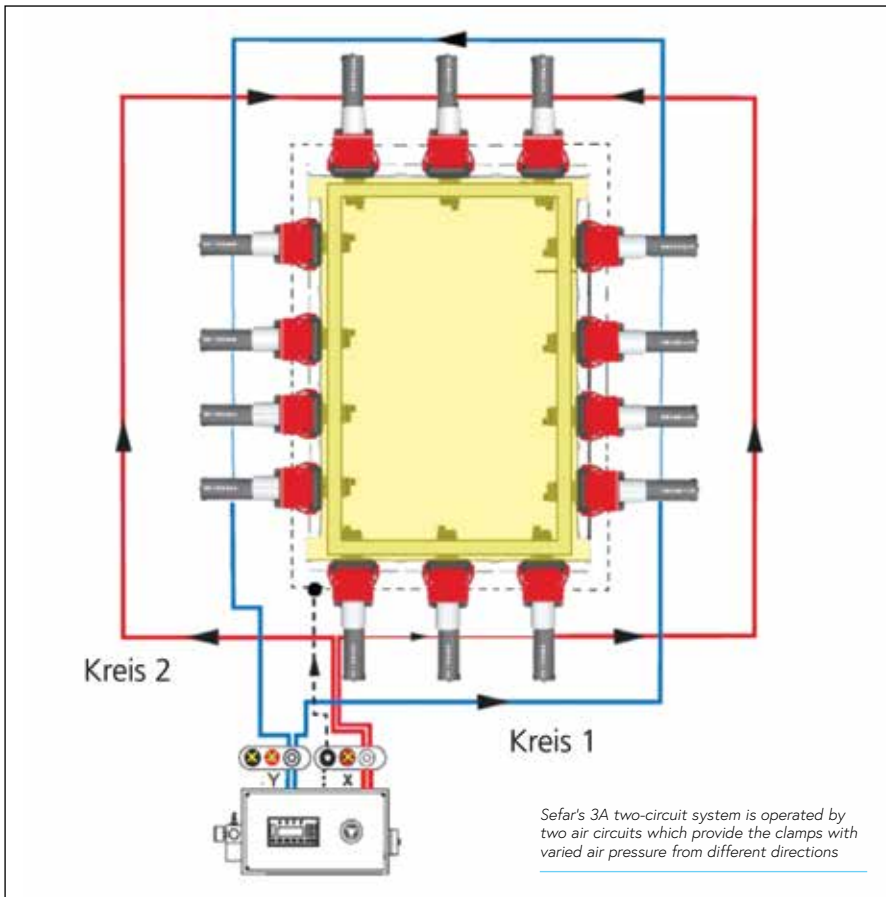
SINGLE AND TWO-CIRCUIT SYSTEMS

In general, we recommend either single or two-circuit systems, which define the air circuit of the clamp system. The single circuit

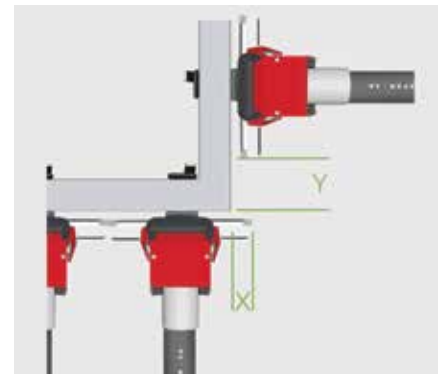
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Sefar's 3A single circuit system provides all clamps with air to enable multidirectional tension of the mesh



Sefar's 3A single-circuit system in a corner position



For frame sizes over 150cm, Sefar recommends using its two-circuit system, shown here in a corner position



Sefar's 3A 150/250 and 3A 150/250L (Longstroke) clamps offer a long cylinder stroke and are suitable for larger formats to achieve the desired mesh tension

"Parameters such as tensioning duration and pressure as well as individual tensioning steps can be programmed and saved"

system features only one air circuit that provides all clamps with air, which causes multidirectional tension of the mesh. Within the single circuit system the air pressure is consistent and cannot be modified selectively.

The two-circuit system is operated by two air circuits which provide the clamps with varied air pressure from different directions. Therefore, the mesh tension can be adjusted in two directions.

The single circuit system is used for frame sizes up to 150cm. For frame sizes above 150cm, we recommend using a two-circuit system. The distance between the corner clamps must be correspondingly adjusted to the requirements of the

respective system in order to obtain ideal mesh tension. Sefar's Longstroke 3A clamps, which provide a long cylinder stroke, are suitable for larger formats to achieve the desired mesh tension.

CONTROL UNIT

The tensioning process requires a control unit to ensure a monitored supply of air to the clamps. Sefar's programmable 51i control unit guarantees a reproducible high-precision tensioning process as parameters such as tensioning duration and pressure as

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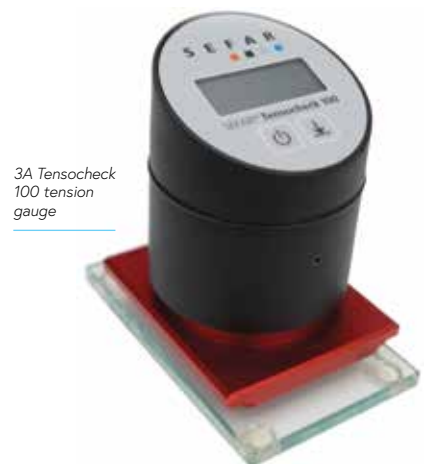
well as individual tensioning steps can be programmed and saved.

The unit can also be connected directly to the Sefar Tensochek 100 tension gauge over a serial RS 232 interface. Due to the immediate control of mesh tension, a high reproducible accuracy is obtained – considerably higher than in a manually controlled tensioning process. ■



Programmable 51i control unit

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3A Tensochek 100 tension gauge

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